

SECRET

Annex C

Survey of the Process of
Technological Development in the USSR

There are a number of popular assumptions about Soviet technical ability, particularly in the field of practical development, that might be summarized as follows: (a) "The Soviets are good theorists but are not capable of practical development" and (b) "The Soviets are good copyists but cannot innovate". There are many variations on the above theme. However, it is fairly obvious that the state of our knowledge does not include a comprehensive logical or factual basis for pinning down such generalizations.

25X1A5A1

It is suggested [] undertake a survey and analysis of specific Soviet developments in the technical fields to both determine the process and the actual "ladder" effect as it might be projected into the future. Such a survey would seek to arrive at a conclusion about the relation of Soviet technical development to that in the West. Obviously this has pertinence both to East-West trade and to future capabilities.

Among the questions that might be looked into are the following:

1. What are the actual steps by which the Soviet
 - a. obtains a new technical development from outside its borders,
 - b. processes the development (e.g., by banking it, by formulating comparison tests, by modifying or adapting the process, by applying it), and
 - c. stimulates or handles inventions and new developments within the Orbit;
2. What standards and measures affect the economic value of Soviet invention — are these different (and how) from those of the West? For instance, is the electrolytic-spark grinding process economic only because of lack of diamonds, or is it a "crank" development, a type of "sport" which could only happen within the framework of Soviet national sensitivity, and Soviet planning?
3. What is the comparative efficiency factor of a copied product as compared with the original?

In the matter of the comparative efficiency factor, the various technical aspects of any one manufactured product in relation to its uses and life expectancy should be particularly examined. If the design of a certain component part or product is perfect but materials used in such a product are not selected and engineered to the close specifications for life or

SECRET

SECRET

accuracy (either the metal is too hard or too soft or the proper alloy has not been used and sub-standard performance might be expected in due course), what are the economic effects that might be expected either from a single item or from a number of items in their interrelations within one process or product? What part does time play in these effects?

A few very limited attempts have been made to get at the above problems (such as Sovmat, certain automotive analyses, etc.) but there is little basis for generalization, since what has already been done has not been pulled together to point to any particular conclusion.

Such a project should utilize American manufacturing experience gained during the war and immediately after, through work with Soviet purchasing and other missions. Many companies were asked to develop prototypes from Soviet designs apparently because the Soviets had no capacity to make the items themselves. One such instance (1945-46) is that of a huge boring machine made by the King Machine Tool Company of Cincinnati entirely from Soviet blueprints and at considerable expense which was found to be unusable after being completed. Many other such cases are certain to exist in company files.

A historical analysis would also be valuable. That is, the standard time factor or so called "lead time", as well as other component time factors for a standard development in the US or the West should be compared with actual results of copying or innovation on the part of the Soviet. This approach would serve as a basis for testing the Western belief that the time element is of major significance in the development processes, that developments cannot be pushed faster or moved ahead at too great a rate without fundamental damage to the end objective. An isolated, spectacular technological jump is only superficial and often proves uneconomical. Fundamental development in an economy cannot be pushed too fast and too far without deleterious effects. There are also the problems of how broad must development be to insure a progressive industrial economy, or, the reverse, how thin can such development be and still be effective. This kind of problem should lead into assessing the Soviet phenomenon by which it can find means to produce an atomic bomb and apparently cannot produce a normal metal file of good quality.

SECRET